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PRELIMINARY REPORT ON TORNADOES IN THE UNITED STATES DURING 1943 AND TOTALS AND AVERAGES, 1916-42, BY STATES

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THE tabulations for 1943, as shown in table 1, are derived from data on "Severe Local Storms" appearing in the MONTHLY WEATHER REVIEW and in monthly Climatological Data of the various sections of the United States. They show the approximate monthly and annual number of tornadoes and the deaths, injuries, and property damage caused by them in the several States and the country as a whole. A final and more complete report will appear in the United States Meteorological Yearbook, 1943.

Table 2 is a rather complete tabulation of the total and average yearly number of tornadoes and deaths and damage caused by them in each State or section for the period 1916-42. It is given for comparative purposes.

The total number of tornadoes reported during 1943 was 171, or 26 more than the normal. Of these, 61 occurred in May. The greatest monthly number generally occurs during this month, but this is approximately twice the usual number. It is probably due to several families or groups of tornadoes occurring in Kansas and Iowa. During the 3 months from April to June, 110, or nearly two-thirds of the tornadoes, were reported against only 3 relatively mild ones in the winter. Tornadoes were reported from 25 States. These were all east of the Rocky Mountains. They were the most widespread in May when reported from 15 States extending from Colorado and Texas to North Carolina and New York.

There were 50 deaths or only approximately one-fifth the average toll of these twisters; about 840 people were injured. Most of the deaths and injuries occurred during April and May. Those that traveled through thickly settled areas caused a surprisingly low loss of life, as in the cases at Akron and Cleveland, Ohio. The most deaths from a single tornado were 6 at Roxobel, Bertie County, N. C., on April 19. No loss of life was attributed to approximately 40 tornadoes in Iowa and only 1 to about 25 in Kansas.

Property damage for the year was approximately \$12,161,800, which is about \$1,000,000 more than the usual destruction. More than half of this occurred during April and May, and practically none in January, February, and December. Ohio led with losses of \$4,600,000, followed by Texas with \$2,138,000, while Iowa and Kansas had somewhat less than \$1,000,000 damage each. In the area occupied by the 10 States—Oklahoma, Arkansas (none), Nebraska, Missouri, Illinois, Kentucky (none), Tennessee, Mississippi, Georgia, and South Carolina (none)—where normally 52 tornadoes kill about 155 people and destroy almost \$6,000,000 worth of property annually, there were only 28 tornadoes in 1943 which killed 14 people and destroyed property valued at less than \$160,000.

Probably the most severe tornado during 1943 occurred at Akron, Ohio, on the evening of April 27. This was the

most destructive single tornado in Ohio, since the great Lorain storm of June 28, 1924, in which 73 lives and \$11,000,000 worth of property were lost. The tornado began about 8 p. m. at Wadsworth about 14 miles west-southwest of the center of Akron and moved eastward across the city of Akron to Mogadore, traveling a course of over 20 miles in about 50 minutes. The intensity of its destruction varied considerably. There was surprisingly no loss of life, although it traveled through thickly populated areas. Over 100 persons were injured and property damage exceeded \$2,000,000. The Akron Chamber of Commerce reported that 955 buildings of all types were damaged or destroyed, including factories, houses, and smaller structures. Extensive damage was done to several war plants, necessitating some shutdowns for repairs. Between 8:25 and 8:40 p. m. of the same evening tornadoes moved east-southeastward across Cleveland, passing only about 2 miles south of the Public Square. In spite of the fact that the path of destruction was about 300 feet wide and extended 14 miles through thickly settled areas, there were no direct loss of life and only about 100 were injured. These tornadoes (probably 3) seemed to bound along, leaving destruction estimated at near \$1,000,000 in their paths. There were a number of additional tornadoes during the same evening in other areas of northern Ohio, which killed 3 people, injured 12, and destroyed about \$400,000 worth of property. These storms occurred in connection with a prefrontal squall line in a narrow warm sector associated with a low-pressure system that was passing eastward across the lower Lakes. Northern Ohio was again visited by another series of tornadoes on the evenings of August 12 and 13. These killed 3 people, injured 64, and did \$1,180,000 damage.

One of the most destructive tornadoes in Michigan's history passed 6 miles north of the Weather Bureau Office at East Lansing about 8:50 p. m., E. S. T., on June 1. In a 25-mile path it destroyed practically every building on higher ground and passed over many in the valleys. The remarkable feature of this storm was that it destroyed \$600,000 worth of property, including 265 farm buildings, without killing a person and only slightly injuring 12.

On the afternoon and evening of May 15, a series of tornadoes, possibly as many as 17, occurred in Kansas, causing the death of 1 person, injuring over 200, and damaging property valued at approximately \$632,500. The death and most of the injuries occurred at the Cavalry Replacement Center at Fort Riley, with \$178,000 property loss. Three miles south of Wamego 6 funnel clouds were observed passing by within half an hour, and at Maple Hill 5 distinct vortex clouds were seen. Near Peterton, it was reported that a Shetland pony was blown 1 mile and let down without injury in another pasture. At almost exactly 1 month later, another series of tornadoes,

probably 6, did about \$331,700 worth of damage without the loss of a human life in this State.

About 17 tornadoes were reported from Texas, with the loss of 9 lives, injury of 108 persons, and property damage of \$2,138,000. One of these occurred at San Augustine about 4:45 p. m., March 5 and killed 1 person, injured 8, and did about \$500,000 damage to buildings. One of the most serious tornadoes, moving northeastward over a narrow path 15 miles long, struck Laid Hill about 12:50 p. m. and Kilgore about 1:05 p. m. on May 10. Damage to buildings was estimated at \$1,000,000, 4 persons were killed, and 25 injured. On November 6 a tornado moving north-northeastward struck Freeport about 5:50 p. m., where it killed 2 persons, injured 36, and destroyed 250 houses and business buildings estimated at \$450,000. At

about 8 p. m. on the same day a tornado, thought to be the same one that struck Freeport earlier in the evening, destroyed \$150,000 worth of property and injured 33 people seriously at Galveston.

Other tornadoes on the night of November 6 and early the 7th killed 5 persons, injured 15, and damaged property to the extent of \$210,000 in Louisiana. A very destructive tornadic storm occurred in Clark County, Ind., on July 29, with estimated property damage of \$800,000 and injury of 7 persons.

At Petoskey, Mich. on September 10, three waterspouts were observed moving eastward across Little Traverse Bay. They ranged in height from 100 to 200 feet and the largest was visible for 15 minutes. On the same date two or three were also reported as being over Saginaw Bay.

TABLE 1.—Tornadoes and probable tornadoes

State*	January	February	March	April	May	June	July	August	September	October	November	December	Annual
Alabama:													
Number.....				2	1								3
Deaths.....				6									6
Injuries.....				74									74
Damage (\$ × 1,000).....				600.0	102.5								702.5
Colorado:													
Number.....				1	1								2
Deaths.....					1								1
Injuries.....				(?)	(?)								(?)
Damage (\$ × 1,000).....													
Florida:													
Number.....		1	1	2									4
Deaths.....													
Injuries.....			30	10									40
Damage (\$ × 1,000).....		0.3	500.0	(?)									500.3
Georgia:													
Number.....	2				1								3
Deaths.....													
Injuries.....													
Damage (\$ × 1,000).....	(?)				(?)								(?)
Illinois:													
Number.....					2								2
Deaths.....													
Injuries.....													
Damage (\$ × 1,000).....					11.0								11.0
Indiana:													
Number.....			1		1		2						4
Deaths.....													
Injuries.....			2				7						9
Damage (\$ × 1,000).....			10.0		1.0		800.6						811.6
Iowa:													
Number.....			6		22	7	3	2					40
Deaths.....													
Injuries.....			7		11								18
Damage (\$ × 1,000).....			280.0		\$ 474.5	\$ 77.0	\$ 110.0	(?)					\$ 941.5
Kansas:													
Number.....				2	17	6							25
Deaths.....					1								1
Injuries.....					200	1							201
Damage (\$ × 1,000).....				6.0	632.5	331.7							970.2
Louisiana:													
Number.....					1								6
Deaths.....													5
Injuries.....													15
Damage (\$ × 1,000).....					25.0						5		235.0
Maryland:													
Number.....				1								2	3
Deaths.....													
Injuries.....													
Damage (\$ × 1,000).....				(?)							20.0		20.0
Michigan:													
Number.....					2	2							4
Deaths.....													
Injuries.....					2	14							16
Damage (\$ × 1,000).....					(?)	650.0							650.0
Minnesota:													
Number.....							3	2	2				7
Deaths.....													
Injuries.....													
Damage (\$ × 1,000).....							(?)	45.0	\$ 100.0				\$ 145.0
Mississippi:													
Number.....			1										5
Deaths.....													2
Injuries.....													8
Damage (\$ × 1,000).....			2.0									\$ 10.0	\$ 12.0
Missouri:													
Number.....			2	1	1					1	1		6
Deaths.....				1	4								5
Injuries.....				4	5					5	3		17
Damage (\$ × 1,000).....			18.0	(?)	7.5					55.0	5.0		85.5
Montana:													
Number.....						1							1
Deaths.....													
Injuries.....													
Damage (\$ × 1,000).....						(?)							(?)

See footnotes at end of table.

TABLE 1.—Tornadoes and probable tornadoes—Continued

State*	January	February	March	April	May	June	July	August	September	October	November	December	Annual
Nebraska:													
Number.....						1				1			2
Deaths.....						2							2
Injuries.....													
Damage (\$ × 1,000).....						30.0				4.0			34.0
New York:					1								1
Number.....													
Deaths.....													
Injuries.....													
Damage (\$ × 1,000).....					(7)								(7)
North Carolina:													
Number.....				1	1								2
Deaths.....				6	1								7
Injuries.....				23	4								27
Damage (\$ × 1,000).....				128.0	3.0								131.0
Ohio:													
Number.....				5	2		2	5					14
Deaths.....				3				3					6
Injuries.....				212				64					276
Damage (\$ × 1,000).....				3,400.0	20.0		(4)	1,180.0					4,600.0
Oklahoma:													
Number.....				2	3	3	1						9
Deaths.....				2	1	2							5
Injuries.....				12	8	5							25
Damage (\$ × 1,000).....				40.0	1.6	64.6							106.2
Pennsylvania:													
Number.....							2			1			3
Deaths.....													
Injuries.....							2						2
Damage (\$ × 1,000).....							45.0			(2)			45.0
South Dakota:													
Number.....						3			1				4
Deaths.....						1							1
Injuries.....						4							4
Damage (\$ × 1,000).....						21.0			(2)				21.0
Tennessee:													
Number.....								1					1
Deaths.....													
Injuries.....													
Damage (\$ × 1,000).....								(4)					(4)
Texas:													
Number.....			1	6	5		1	2			2		17
Deaths.....			1	1	4		1				2		9
Injuries.....			8	4	27						69		108
Damage (\$ × 1,000).....			500.0	(4) 13.0	1,024.0		(4)	1.0			600.0		2,138.0
Wyoming:													
Number.....						3							3
Deaths.....													
Injuries.....													
Damage (\$ × 1,000).....						2.0							2.0
United States:													
Number.....	2	1	12	23	61	26	14	12	3	3	14		171
Deaths.....			1	19	12	5	1	3			9		50
Injuries.....			47	339	257	24	9	64		5	95		840
Damage (\$ × 1,000).....	(4)	0.3	1,310.0	4,187.0	2,302.6	1,176.3	955.6	1,226.0	100.0	59.0	845.0		12,161.8

*None reported from States not listed.

1 Press report.

2 Several hundred (slight).

3 Several thousand.

4 Considerable damage.

5 Considerably more.

6 Includes some hail, rain, and straight-line wind damage.

7 Part of a general storm.

TABLE 2.—Tornadoes

[Number, deaths, and damage by States]

State or section	Totals 1916-42			Average yearly			State or section	Totals 1916-42			Average yearly		
	Number	Deaths	Damage	Number	Deaths	Damage		Number	Deaths	Damage	Number	Deaths	Damage
Alabama.....	157	640	\$11,434,200	5.8	23.7	\$423,489	New England.....	32	4	\$1,860,700	1.2	0.2	\$68,915
Arizona.....	2	0	2,500	0.1	0	93	New Jersey.....	11	2	1,560,500	0.4	0.1	57,796
Arkansas.....	272	666	12,312,400	10.1	24.7	456,015	New Mexico.....	31	5	306,400	1.1	0.2	11,348
California.....	14	2	285,500	0.5	0.1	10,574	New York.....	20	5	1,237,700	0.7	0.2	45,841
Colorado.....	37	27	753,400	1.4	1.0	27,904	North Carolina.....	48	39	3,339,300	1.8	1.4	123,678
Florida.....	79	23	827,670	2.9	0.9	30,654	North Dakota.....	46	30	1,393,000	1.7	1.1	51,593
Georgia.....	99	468	24,273,850	3.7	17.3	899,031	Ohio.....	76	142	18,922,150	2.8	5.3	700,820
Idaho.....	5	2	29,500	0.2	0.1	1,093	Oklahoma.....	222	404	12,880,567	8.2	15.0	477,058
Illinois.....	124	862	34,467,550	4.6	31.9	1,276,576	Oregon.....	3	0	10,600	0.1	0	393
Indiana.....	86	215	14,005,850	3.2	8.0	518,735	Pennsylvania.....	43	10	3,046,500	1.6	0.4	112,833
Iowa.....	401	74	13,808,205	14.9	2.7	511,415	South Carolina.....	92	164	7,078,300	3.4	6.1	262,159
Kansas.....	425	149	14,551,815	15.7	5.5	538,956	South Dakota.....	101	18	2,241,200	3.7	0.7	83,007
Kentucky.....	28	168	5,202,600	1.0	6.2	192,689	Tennessee.....	95	264	6,923,800	3.5	9.8	256,437
Louisiana.....	116	230	5,536,220	4.3	8.5	205,045	Texas.....	359	494	17,562,600	13.3	18.3	650,467
Maryland and Delaware.....	40	25	1,670,725	1.5	0.9	61,879	Utah.....	2	0	4,000	0.1	0	148
Michigan.....	72	21	8,813,450	2.7	0.8	326,424	Virginia.....	26	32	1,247,000	1.0	1.2	46,185
Minnesota.....	96	146	14,766,300	3.6	5.4	546,900	Washington.....	3	0	250	0.1	0	9
Mississippi.....	155	742	11,912,050	5.7	27.5	441,187	West Virginia.....	2	3	30,000	0.1	0.1	1,111
Missouri.....	178	387	34,234,950	6.6	14.3	1,267,961	Wisconsin.....	109	92	8,076,000	4.0	3.4	299,111
Montana.....	45	2	188,525	1.7	0.1	6,982	Wyoming.....	29	3	414,075	1.1	0.1	15,336
Nebraska.....	152	48	5,156,300	5.6	1.8	190,974	United States.....	3,933	6,608	302,368,202	145.0	245.0	11,198,821
Nevada.....	0	0	0	0	0	0							